

REMARKS

Favorable reconsideration is respectfully requested in light of the above amendments and the following remarks. Previously withdrawn claims 38-63 have been canceled. New claims 64-84 have been added. No new matter has been entered as a result of these amendments, particularly since the new claims represent objected-to dependent claims rewritten in independent form, as well as selected new dependent claims depending therefrom.

Allowable Claims

Applicant thanks the Examiner for indicating that claims 27-37 are allowed, as well as indicating that claims 3-6, 9, 11, 14, 16-21 and 23-25 would be allowable if rewritten in independent form including any intervening claims.

New claim 64 includes the elements of claims 1, 2 and 3. Since claim 3 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 64 is believed to be in condition for allowance. For similar and other reasons, new claims 65-71, which depend from claim 64, are also believed to be in condition for allowance.

New claim 72 includes the elements of claims 1 and 9. Since claim 9 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 72 is believed to be in condition for allowance.

New claim 73 includes the elements of claims 1 and 11. Since claim 11 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 73 is believed to be in condition for allowance.

New claim 74 includes the elements of claims 1 and 14. Since claim 14 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 74 is believed to be in condition for allowance.

New claim 75 includes the elements of claims 1 and 16. Since claim 16 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 75 is believed to be in condition for allowance. For similar and other reasons, new claims 76-77, which depend from claim 75, are also believed to be in condition for allowance.

New claim 78 includes the elements of claims 1 and 19. Since claim 19 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 78 is believed to be in condition for allowance. For similar and other reasons, new claims 79-80, which depend from claim 78, are also believed to be in condition for allowance.

New claim 81 includes the elements of claims 1, 22 and 23. Since claim 23 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 81 is believed to be in condition for allowance.

New claim 82 includes the elements of claims 1 and 24. Since claim 24 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 82 is believed to be in condition for allowance.

New claim 83 includes the elements of claims 1 and 25. Since claim 25 was indicated as being allowable if rewritten in independent form including any intervening claims, new claim 83 is believed to be in condition for allowance. For similar and other reasons, new claim 84, which depends from claim 83, is also believed to be in condition for allowance.

In view of the foregoing, claims 27-37 and 64-84 are all believed to be in condition for allowance.

Anticipation Rejection

Applicant respectfully traverses the Examiner's rejection of claims 1-2, 7-8, 10, 12-13, 22 and 26 under 35 U.S.C. §102(e) as anticipated by Rader et al. (U.S. Publication No. 2003/0052281). In order to anticipate, the cited reference must disclose each and every claimed element in at least as much detail as is claimed. Rader et al. clearly fail to do so.

In particular, claim 1 reads:

1. (original) A particle analyzer, comprising:
a particle concentrator adapted to collect and concentrate particles found within an aerosol;
a sample collection surface adapted to accept particles provided by the particle concentrator;
an energy source that provides energy that is adapted to induce fluorescence in the particles held by the sample collection surface; and
a detector adapted to detect the induced fluorescence (emphasis added).

As can be seen, claim 1 (and hence claims 2, 7-8, 10, 12-13, 22 and 26 depending therefrom) recite a sample collection surface. Claim 1 also recites that the energy source provides energy that is adapted to induce fluorescence in the particles that are held by the sample collection surface. Rader et al. do not appear to teach, disclose or suggest such a particle analyzer.

In Rader et al., Figures 2A-2B relate to a virtual cyclone, Figure 3 relates to an opposed-flow virtual cyclone, Figure 4 relates to an aerodynamic lens, and Figure 5 relates to a virtual impactor; all apparently for use as micro-preconditioners in a Aerosol Lab-On-a-Chip (ALOC). Notably, the descriptions of these Figures do not appear to describe how, when, or where an energy source might provide energy to induce fluorescence in the particles.

The use of Laser Induced Fluorescence (LIF) appears to be discussed in paragraphs [0043] and [0044] of Rader et al. However, these paragraphs do not appear to teach, disclose or suggest a particle analyzer that includes: a particle concentrator adapted to collect and concentrate particles found within an aerosol; a sample collection surface adapted to accept particles provided by the particle concentrator; an energy source that provides energy that is adapted to induce fluorescence in the particles held by the sample collection surface; and a detector adapted to detect the induced fluorescence. Instead, paragraph [0043] of Rader et al. states: “UV illumination could be provided by a UV diode laser ... that illuminates a stream of particles passing through the UV laser beam.” (emphasis added). This would appear to suggest directing energy at particles that are held within an aerosol stream.

The Examiner appears to recognize that Rader et al. suggest directing energy at particles that are held within an aerosol stream by stating in paragraph 3 of the Office Action “[a] UV laser diode laser light source on the substrate or substrate stack is mounted so that it is located downstream of the sample inlet port at a right angle to the sample particle stream”. Directing laser light at a right angle to a sample particle stream is clearly not equivalent to providing a sample collection surface adapted to accept particles provided by the particle concentrator, and an energy source that provides energy that is adapted to induce fluorescence in the particles held by the sample collection surface, as recited in claim 1.

The Examiner also points to paragraph [0005] of Rader et al., which states in part: “Sometimes the characterization of these gas-borne particles can be performed in situ (i.e., while

the particles remain suspended in a gas), while in extractive techniques these particles are collected and then deposited onto a solid substrate or into a liquid for the purpose of subsequent physical or chemical analysis." However, this is part of the Background of the Invention section of Rader et al., and appears to be generally discussing how gas-borne particles can be analyzed. It is not clear from this paragraph how, for example, what and how extractive techniques might be used to collect particles and deposit them onto a solid substrate or into a liquid for purpose of subsequent physical or chemical analysis. Certainly it cannot readily be argued that this discloses a particle analyzer that includes: a particle concentrator adapted to collect and concentrate particles found within an aerosol; a sample collection surface adapted to accept particles provided by the particle concentrator; an energy source that provides energy that is adapted to induce fluorescence in the particles held by the sample collection surface; and a detector adapted to detect the induced fluorescence, as recited in claim 1.

In view of the foregoing, Rader et al. cannot be considered as anticipating claim 1. Nor would there appear to be any reason to modify Rader et al. to arrive at claim 1. For these and other reasons, claim 1 is believed to be clearly patentable over Rader et al. For similar and other reasons, dependent claims 2, 7-8, 10, 12-13, 22 and 26 are also believed to be clearly patentable over Rader et al. Favorable reconsideration is respectfully requested.

Obviousness Rejection

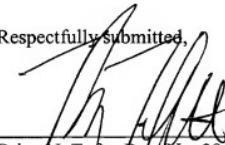
Applicant respectfully traverses the Examiner's rejection of claim 15 under 35 U.S.C. §103(a) as unpatentable over Rader et al. (U.S. Publication No. 2003/0052281) in view of Beck et al. (U.S. Patent No. 7,057,712). Claim 1, from which claim 15 depends, is distinguished above as being clearly patentable over Rader et al. As Beck et al. do not appear to remedy the noted shortcomings of Rader et al., claim 1 is believed to be clearly patentable over both references. Claim 15 includes the elements of claim 1, and adds further distinguishing features and therefore is believed to also be clearly patentable over the cited references. Favorable reconsideration is respectfully requested.

Conclusion

In view of the foregoing, all pending claims are believed to be in condition for allowance. Favorable reconsideration in the form of a Notice of Allowance is respectfully requested. If a teleconference might be of value, the Examiner is invited to contact the undersigned attorney.

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Respectfully submitted,



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